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AUTHOR Hill, C. Russell
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ABSTRACT

This report reviews and critiques several existing studies of the child care market in order to determine the factors which lead families with working mothers to use different modes of child care. This analysis is further used to discuss federal policies which affect the child care market. Studies reviewed use different data sources and methodologies. The primary type of study reviewed is a "demand" analysis in which child care is treated as a commodity for which the consumer has a preference which is revealed in a market situation. Findings indicate that the size and age composition of the family and the working woman's wage rates have an important effect on the chosen mode of child care. Preferred modes of child care and the market for these modes are also discussed. Arguments for expanded national day care coverage are based on four factors: (1) large waiting lists in day care centers, (2) increasing numbers of female headed households, (3) increasing labor force participation of women with preschool children, and (4) the impression that self care or care by older siblings is inadequate, the studies of the market for preschool child services lead to four conclusions. It is indicated that the role of the federal government should be one of improving the market by promoting both efficiency and equity through a system of public and private child care financing and by providing information on alternatives in the child care market. (Author/CS)

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THE CHILD CARE MARKET: A REVIEW OF THE EVIDENCE AND IMPLICATIONS FOR FEDERAL POLICY

by

C. Russell Hill
Associate Professor of Economics
College of Business Administration
University of South Carolina

January 1977

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It is being distributed to solicit comments and criticisms to assure technical soundness, the adequacy of supporting materials, relevance, and general comprehensibility. It is hoped that this paper and its review will contribute to the improvement of the public debate on social policy and the proper Federal role in regulating child day care.

Comments may be addressed to:

William R. Prosser
Department of Health, Education and Welfare
OS/ASPE/SSHD - 416E South Portal Building
200 Independence Avenue, S.W.
Washington, D. C. 20201

EXECUTIVE SUMMARY

From 1940 to 1975, the number of women participating in the labor force more than doubled, while, during the same period, the number of working mothers increased more than eightfold. The projections for 1985 indicate that there will be 6.6 million mothers in the labor force with children under the age of five. This would represent a thirty-two percent increase from 1975. Whatever the relative strengths of the social and economic determinants of this secular trend, it is clear that the movement into the labor force by women with young children could not have occurred without the provision of some mode of child care--either from within the family or external to it. The purpose of this report is to review and critique several existing studies of the child care market in order to better understand the factors which lead families to use different modes of child care while the mother is employed. The analysis of the state of the child care market is then used to discuss the Federal role and a variety of Federal policies in this market.

The studies chosen for review provide a wide cross-section of sample characteristics and methods of analysis. The primary type of study reviewed here is what the economist would term a "demand" analysis. Here child care is treated as a commodity for which the consumer has a prefer-

ence and these preferences are revealed in a market situation. While studies of the demand for different modes of child care indicate families' preferences for alternative modes, they do not, in general, tell us how these preferences are formed. Policies designed to encourage the use of certain modes of child care would be enhanced if we knew which characteristics of the observed mode that is demanded lead to that choice. The review of these several studies can be summarized as follows:

1. The utilization studies all indicate that either in-home or informal market care (babysitters or relatives not in the home) is revealed to be the preferred method of caring for preschool children for the majority of households across a wide spectrum of income classes.
2. Mothers appear to be "satisfied" with their present choices of child care arrangements although the survey questions which elicit such responses may lead to rather self-servicing answers.
3. The size and age composition of the family is a critical factor in affecting the family's choice of child care mode. The lack of teenage siblings or other adults, or a one-parent family, sharply increases the probability of the family using an extra-family mode of child care for its preschoolers.
4. The net effect of working women's wage rates and other family income differ in the manner in which

they affect modal choice. In two-parent households, for example, the higher the wife's wage rate, the more likely the family is to use both formal and informal market care. Other family income had essentially no net effect on modal choice at all.

5. Because the use of formal modes of child care is positively related to female earnings, subsidizing this method of care may be regressive in nature. That is, families with higher female earnings will receive greater subsidies.

6. It is difficult to make quantitative judgements regarding quality differentials among child care vendors on the supply side of the market. Most studies, however, use the staff-child ratio as the summary measure to evaluate differences across day care centers or other market providers.

7. The simultaneous existence of day care waiting lists and excess capacity in the day care centers need not imply market disequilibrium. Without further information on the price structure of alternative modes of care, the mere fact of putting one's name on a waiting list is not a reliable indicator of consumer preferences.

The arguments for expanded national day care coverage seem to be based on four factors. First, the number of individuals on the waiting lists of day care centers is quite large; second, the number of female headed households is

increasing; third, the labor force participation of women with preschool children has shown a dramatic secular increase; and fourth, there is the impression that self-care or care by older siblings is inadequate care. These factors, by themselves, need not imply a direct Federal role in the child care market nor do they imply an excess demand for formal, institutionalized day care facilities. The studies of the market for preschool child services reviewed in this report do lead us to the following conclusions:

Conclusion 1: Households with working mothers reveal their preferences by purchasing at-home or informal market care for reasons that are economically rational.

Conclusion 2: While most studies indicate that consumers are content with their present method of caring for their children, not enough is known about how preferences are formed and the need for adequate consumer information about alternatives.

Conclusion 3: The size and age composition of the family is a critical factor in affecting a family's choice of child care mode and should, therefore, be an important element in any Federal policy of child care support.

Governmental intervention in a market is justifiable on economic grounds if the private market's demand and supply relationships do not fully measure both the private and

social benefits and costs of a transaction. The evidence reviewed here implies that this economic justification for intervention is only weakly supported. The general concensus seems to be that the benefits to society of publically provided day care services are, at best, quite small. This argument is made on economic grounds, however, and other philosophical arguments may be persuasive. For example, the argument is made by women's rights groups that an important step in achieving equality for women is for society to finance the child care costs of those who wish to work. While there is little evidence of a private market failure for child care, the presumed benefits to children of Federally standardized care make it likely that there will be an important Federal role. This role should be one of improving the market in terms of promoting both efficiency and equity. Our last policy conclusion, then, is as follows:

> Conclusion 4: Unless and until convincing evidence becomes available regarding the benefits to children of alternative modes of care, Federal policy should be essentially neutral with regard to the promotion of one mode of care over another.

Efficiency and equity would be improved through a system of public and private child care financing together with a mechanism of control on the demand side that blends parental and professional judgements. The proper form of subsidy would be a child care voucher which is given directly to the consumer, not to the vendor, and is applicable to both formal

and informal modes of care. The voucher would be both income conditioned and age-structure-of-family conditioned. An essential component of such a voucher system in a mechanism to ensure that parental judgements are well informed about the care of their children and about alternative facilities.

When one looks at the entire child care modal distribution--both formal and informal market care and nonmarket care--it is not clear that Federal intervention will "improve" the choice decisions made by households. The evidence reviewed here indicates that consumers choose nonmarket or family modes of care for rational reasons and are likely to continue to do so, regardless of Federal action. The Federal government should, therefore, accept this example of consumer sovereignty and play largely two roles in this market. First, as a catalyst which facilitates consumer choice by providing information on alternative market modes and second, developing a subsidy scheme which is both equitable and flexible enough to ensure an efficient allocation of resources to the desired mode of care.

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I. INTRODUCTION

The employment of mothers, as with the employment of all women, has been rising for several decades. From 1940 to 1975 the number of women participating in the labor force (working or looking for work) more than doubled, while, during the same period, the number of working mothers increased more than eightfold. Most of the children of these working mothers were in intact husband-wife families. However, the number of children in two-parent families has decreased since 1970 reflecting both the decline in the birth rate, as well as the marked increase in divorce and separation. Whether married or unmarried, however, the projections for 1985 indicate that there will be 6.6 million mothers with children under the age of five in the labor force or a thirty-two percent increase from 1975. (U.S. Department of Labor, 1973.)

The decision of the mother to work, the length of the workweek, and the choice of the mode of child care are jointly determined and mutually dependent on, among other things, the wage rate and the price per unit of quality of formal (institutional) and informal child care. Give the interdependence of these choices, it is hazardous to examine any one in isolation. Nevertheless, because of statistical problems of estimation, these choices are frequently dis-

cussed and analyzed as if they were not jointly dependent.[1] The amount of work supplied by a family member to the labor market depends not only on his or her market wage rate, but also on the total income position of the family, on the individual's productivity in housework and other activities outside the market, on prices of market substitutes for household goods and services, and on family tastes. Since income has a positive effect on the demand for leisure (non-work time), a higher family income implies a smaller total amount of work (at home and in the market) supplied by family members. For adult men, rising real income over time lead to a decrease in their hours of work in the labor market prior to World War II. The past thirty years, however, have seen no significant change in the hours of work of adult men. This secular rigidity is due, in part, to the growth in female wage rates.[2]

For women the distribution of the total amount of work shifted, over time, from home to the labor market.[3] This shift is explainable by historical changes in several variables. Increases in female wage rates and declines in the relative prices of market substitutes for home goods and services (such as food preparation, labor-saving appliances and child care) meant that increasingly larger quantities of

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[1]An exception to this is the paper by Heckman (1974).

[2]For an explanation of this phenomenon, see Kniesner (1976).

[3]See, e.g., Mincer (1962).

goods and services needed by the home could be obtained by an hours's worth of work in the market than by an hour's work at home. The decline in family size over time and the smaller families of working mothers are consistent with these changes in relative prices as the opportunity cost of the mother's at-home child care has increased. Several empirical examinations have shown that the positive response of the women's labor force participation to her market wage rate is substantially stronger than her negative response to her husband's income or other family income.[4]

It would be misleading to infer from the economic analysis briefly reviewed above that the increased labor force participation of women has been only economic in origin. Clearly, there have been changing societal mores and values over time which have made it more socially acceptable to work in the market for women in general and mothers in particular. Whatever the relative strengths of the social and economic determinants of this secular trend, however, it is clear that the movement into the labor force by married women with children could not have occurred without the provision of some mode of child care, either from within the family or external to it. Again, it is worth pointing out that the choice of mode is jointly determined with the supply of labor. Having said that, however, most of the studies reviewed in Section III concerning modal choice look at that decision in isolation.

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[4]See e.g., the study of Cain (1966) and Fields (1976).

While this may lead to biased predictions, these studies will give some insight into the institutional day care and more informal (at-home) child care markets. These insights will be used to discuss the Federal role and Federal policies in this market in Section IV of this paper.

II. CHILD CARE AS A COMMODITY

The great majority of the studies critiqued in Section III of this paper are concerned with the determinants of the demand for different modes of child care. That is, child care is treated as if it were a commodity--like bread, hair dryers or paper clips--for which the consumer has a preference and these preferences are revealed in a market situation. To fully understand the implications of this approach--and what it does and does not tell us--this section of the paper will be devoted to an explanation of the economist's method of analyzing this problem and the assumption it entails.

The economist's analysis of supply, demand, and the market for a commodity depends on the fundamental presumption that buyers and sellers possess contingent plans as to how they would behave in all market circumstances and at all prices within the range of variation that is likely to occur. Since only one price and one set of circumstances are in effect at any one time, only one of the alternative plans is observable at any one time for an individual. However, if the circumstances vary enough across markets or across individuals in the same market, we may be able to derive information on the various alternatives facing individual buyers and sellers.

In the absence of contrary evidence, economists will assume that observed behavior represents planned behavior. When all parties in a market are able to behave in a manner

consistent with their plans, given present circumstances, this is defined as market equilibrium. If, under some given set of circumstances (where the circumstances include the prevailing market price), the planned supply (demand) was greater than the planned demand (supply), the market would be in a state of excess supply (demand). This is a disequilibrium situation which, in most cases, can be brought into an equilibrium by a change in any of the factors which influence planned demand or supply. The most important factor to the economist in determining market equilibrium is the price of the commodity in question. The price both affects and is affected by the state of the market. Unfortunately, because of the multi-dimensional characteristic of child care, price is the one variable on which our information is most deficient.

Thus far, we have been discussing child care as a "commodity." This terminology deserves further elaboration. Most economic analysis considers the confrontation between a consumer and possible choices among commodities or goods as a direct one. That is, goods are goods and a consumer exercises his or her choice among them. However, in the case of child care--and other goods as well--this may be at best a misleading abstraction. When a consumer is offered a choice between two collections of commodities, his choice is partly determined by his own preferences and partly by the properties of the goods themselves. Commodities are of interest to the consumer, therefore, because of the

properties or characteristics they possess. Indeed, goods are the vehicles for obtaining characteristics (not the final object of choice) and they are analogous to inputs in a production process. The point of this discussion is to stress that the identification of the commodity, child care, is a nontrivial matter and will certainly determine, in large part, the usefulness of the empirical evidence reviewed below. For example, institutional day care as a method for caring for children is a commodity which possesses many different characteristics which are of interest to the potential consumer. Is the care developmental or custodial, is it convenient to home and/or work, etc.? What, in other words, is the core service of child care? The answer to this question differs among both the vendors and the consumers of the care. Given that these differences are seldom fully captured in the existing empirical work, commodities are generally identified as items with similar characteristics but not necessarily identical. As such, the market for child care is typically thought to offer the consumer a choice among these three commodities: institutional day care--that is, care provided by the state or other agency and for which a regular fee is usually charged; informal market care generally provided by a babysitter; and care within the home provided by a family member. The scope of services or purpose of care provided within each of these three categories is sufficiently broad, however, that empirical studies which use this classification scheme may suffer

from an aggregation bias. That is, the results of these studies could be misleading because of our lack of understanding of what "child care" is and the wide variation in the popular interpretation of this care among consumers.

Although consumers may be as eccentric as they wish, economists assume they are eccentric in a consistent manner. More exactly, it is assumed that every consumer possesses well defined preferences in the sense that, offered a choice between two commodities, he or she either (1) prefers one to the other or (2) neither prefers the first commodity to the second or the second to the first. This second relationship between commodities is called the indifference relationship. This, it should be noted, does not imply that the consumer neither knows nor cares whether he prefers one to the other. Finally, preferences in order to be consistent must be transitive. If among three commodities, A, B, and C, whenever A is preferred to B and B is preferred to C, then A must be preferred to C.

A consumer's action indicate his preference. That is, given a choice, a consumer will actually take the collection of goods he prefers. This seemingly innocuous statement is fundamental to the economic study of demand and is frequently misinterpreted by the noneconomist. The individual's <u>demand</u> for a commodity is a relationship between the quantities of the good which the consumer is willing and able to purchase at various alternative prices, holding several other factors constant. The quantities he or she demands reveal the con-

sumer's preferences. To the economist it is less important and certainly less trustworthy to ask a consumer what his preferences would be in alternative circumstances than to observe how these preferences are revealed by the actions he takes in the market. It is extremely hazardous, therefore, to infer that a market is characterized by excess supply or demand by comparing the actual demand (supply) observed in the market with the preferences of potential consumers expressed in an attitudinal survey. To the economist, such preferences are of interest and importance only when they are revealed in the market. While you can not always believe what people say they would do, you can observe what they, in fact, do. Preferences also indicate welfare. That is, if a consumer prefers commodity A to B, it is presumed he does so because A makes him "better off." Consequently, together with the assumption that action indicates preference, this implies that the choice actually made by a consumer in any given circumstance gives him the greatest welfare he can attain in the situation.

While the above discussion is somewhat academic, it is necessary in order to fully understand what the studies reviewed in this paper--written primarily by economists--can and can not tell us about the market for child care in general and the demand for this care in particular. While studies of the demand for different modes of child care indicate families' preferences for these alternative modes, they do not tell us how these preferences are formed. We

only assume they are consistent preferences and reflect the individual's perception of his or her own welfare. While this is enough for the economist qua economist, it may not be sufficient information for those interested in deriving policy from this information. In particular, policies designed to encourage certain modes of child care would be enhanced if we knew which characteristics of the observed mode which is demanded lead to that choice. While we can not answer that question directly, some of the multivariate analyses reviewed below give some insight into that.

Any market is characterized by a demand function for the commodity in question and a supply function. In the market for preschool child care, the household is the unit of observation from which we estimate the demand relationship. The supply of care is provided by a variety of mechanisms. These include in-home providers, unlicensed family day care providers, licensed home providers and child care centers. As yet, there has been no study undertaken which looks at the demand and supply for this care simultaneously. That is, while the market equilibrium which we defined above can be observed, the uniquely separate influences of supply and demand on that equilibrium have not as yet been identified. As an example of this problem, a recent study of the "demand" for different modes of child care which will be reviewed in more detail below (Duncan and Hill, 1975) found that the region of the country in which the household resided had a very significant independent effect on the

household's choice of institutionalized day care versus babysitters versus family in-home care. Unfortunately, it can not be determined from this analysis whether this effect reflects regional differences in preferences for mode of child care or regional differences in the supply of that care. This example illustrates that the analyses which have been undertaken to date of the demand for different modes of child care represent some--as yet undetermined--amalgam of demand and supply elements.

III. A REVIEW OF PREVIOUS ANALYSES

A. The Demand for Child Care

With few exceptions, the previous work in treating child care as a commodity has attempted to estimate "demand" functions for this care. Demand is used in a special way here, however, as these studies have not really identified a demand function. Hence, as discussed above, the estimates combine demand and supply elements in an as yet not fully understood manner. Nevertheless, the authors justify their models by employing traditional microeconomic techniques of demand analysis. This mode of analysis suggests that the quantity demanded of a good is inversely related to its own price, holding other factors constant. These "other factors" are very important for at least two reasons. From a conceptual viewpoint, the value of these variables determines the position of a demand curve in a graph of quantity demanded versus price. From a statistical view, the precision of the estimate of e.g., price elasticity depends, in large part, on our ability to adequately control for the influence of these variables. Several of the control variables that are typically employed in demand analyses are the prices of other commodities which may be either substitutes or complements for the commodity being analyzed, some measure of family income, and some variable or variables which are presumed to reflect differences in tastes

across different consumer units. Of all the variables which are thought to affect the quantity demanded of a specific commodity, however, the price of that commodity is considered to be the most important by the economist. Unfortunately, it is this variable which is the most difficult to define and measure in the market for child care.

Given that different modes of child care have several characteristics, it is difficult to define the price for this characteristic vector. More specifically, we would like to measure the price of a specific mode of care per unit of quality. The measurement of quality is difficult, at best, and is presumably a function of, among other things, a family's perception of the services offered by the mode of care and the auspices under which it is offered. Given that "quality" is--at least to the economist--a somewhat nebulous concept and the lack of data on quality-adjusted modal prices, various proxies are employed to measure the price of child care. What follows below is a critical review of several recent analyses of the child care market.

The studies chosen for review here provide a relatively wide cross-section of sample characteristics and methods of analysis. While it can not be claimed that any one of these studies is fully comprehensive, it is this author's belief that the studies as a whole do now represent both the most recent and informative analyses

of the demand side of the child care market. The reader will note that several well-known analyses are not reviewed here: in particular the work of Low and Spindler (1968) and the Westat Survey (1970). There are several reasons for this omission. First, and most important, they have been more than adequately reviewed elsewhere (see, e.g., Frost and Schneider, 1971 and C. L. Schultz, et al., 1972). Second, while these studies have historical interest, the more recent analyses reviewed here will presumably be those which may have an impact on Federal policies at the present time. Consequently, the purpose of this review is to examine the nature of the market for child care via the demand for and supply of this care and the proper Federal role in this market.

1. Judith R. Lave and Shirley S. Angrist (1974)

Using survey data collected from four work settings in Pittsburg, Pennsylvania, Lave and Angrist analyze how employed women with preschool children obtain child care services and how much they pay for such services. Their sample of 190 employed mothers is predominately middle class (as reflected in occupation and income) and works, on average, about 30 hours per week. The distribution of the child care mode choice for this sample is shown in Table 1 (together with the other studies reviewed here). The bulk of their analysis concerns only the choice which a family makes be-

tween in-home and out-of-home care. There is no information provided on the type of care provided in either setting although it is assumed that the cost of the care and "quality" are closely related.

The model developed by the authors implies that the relevant price to the family for child care is the opportunity cost of the time of the husband and wife devoted to this care (measured by the relevant wage rate) and the price facing the family for any given quality of care. The authors are more successful in measuring the impact of wage rates on modal choice than in measuring the full, quality-adjusted price of this care. Not surprisingly, Lave and Angrist find that the higher the wife's wage rate, the less likely she is to buy child care while she works that requires large inputs of her own time. Their analysis indicates that these women rely primarily on in-home non-family caretakers. Unfortunately, the type of care--i.e., the services offered--is not discussed. While one could expect women (or men) with high wage rates to economize on their own time, other things equal, the author's results should be interpreted with some caution. Because the effect of the wage rate on modal choice is analyzed in only a univariate framework, it is impossible to separate out the price and income effects which occur when the wage rate changes. In

other words, the test employed by Lave and Angrist consists of only comparing the mean hourly wage rates of females who use in-home and out-of-home child care through a "t" test. As this test does not enable one to hold other factors constant, the observed difference in modal choice could reflect numerous factors other than the wage rate. The same method of testing leads the authors to conclude that users of formal day care have somewhat higher family incomes than average child care users. Unfortunately, the type of day care used, why this relationship between income and mode should exist, and what "somewhat higher" means is never discussed.

A multivariate regression model is used to examine the net effect of a variety of factors which affect the family's expenditures on child care. The expenditure data is suspect, however, for--as the authors point out--it sometimes includes expenditures on services other than child care. Nevertheless, Lave and Angrist find that the most significant factor affecting weekly child care expenditures is the mother's weekly earnings. The conceptual model used by the authors is so weak, however, that the meaning of this result and others is unclear.

The issue of whether working mothers would use institutionalized day care and how much they would be willing to pay for it is addressed in some detail

in this paper. First, the authors asked the respondents if they would send their child to a center if "...it were available at a reasonable cost and in a convenient location." Not surprisingly, 60 percent said they would. However, as noted in Section II of this paper, this type of question tells us nothing about demand for it; doesn't require the respondents to reveal their preferences in a market setting. When asked how much they would be willing to pay for such care, the respondents, on average, indicated they would be willing to spend no more than they presently spend. From this the authors conclude that "...only if they are subsidized will quality 'developmental' day care centers become an important mode of child care for the children of working mothers." The validity of this statement depends, at least, on the type of subsidy scheme employed and the subsidized price of this mode of care relative to the price of market and nonmarket alternatives. These questions are not discussed. Given these problems and the fact that the authors' sample is quite narrowly based--covering primarily middle-income mothers--the results are quite likely not generalizable to a larger, more heterogeneous population. Consequently, the authors' policy recommendation must be used with caution, if at all.

2. Richard L. Shortlidge (1975)

In this paper, data from the 1971 wave of the National Longitudinal Survey of Adult Women are used to draw inferences about the demand for institutionalized day care. The reader is again referred to Table 1 for the distribution of this sample by modal choice of child care. Unlike most other data, the auspices under which the out-of-home care is offered are detailed. Unfortunately, the services offered under this mode of care are not discussed nor are the factors which affect a family's choice of alternative auspices. For mothers represented in these data--which is a national probability sample--most of the child care takes place in the child's own home and the great majority of women, when asked about their preferences for an alternative form of care, said they were content with the existing arrangement. Presumably this means content at existing prices, although one is not sure what preferences and constraints are implied by answers to such questions. One problem is that the question itself may lead the respondent to give the answer which is least damaging or embarrassing to her. That is, once having made a choice of the form of child care to be used, the mother may be quite reluctant to admit that she is not happy with that choice.

The author purports to investigate preferences for day care centers when he analyzes data from a question which asked mothers with children under the age of 18 if they would be willing to use a day care center if available to them at a cost no greater than that of their current arrangement. For white working mothers with preschool children, 23 percent expressed a desire to use a day care center in contrast to the 9 percent who were currently using one. The corresponding proportions for black working mothers were 39 and 13 percent. The inference, therefore, is that for every working mother who left her child in a day care center, there were three who were willing to do so. To the casual reader, this would seem to imply excess demand which could be alleviated by either an increase in the quality-adjusted price of day care centers given existing demand and supply relationships and/or an increase in supply through, for example, government support of this mode of care. However, the answer to the question posed indicates nothing about demand for it does not require the respondent to make alternative choices at alternative prices. Indeed, if the current child care arrangement is in-home care by a relative for many families, then the direct cost to the family of this mode of care is zero. Consequently, the question asked of such families is whether they would use a free day

care center if it were convenient.. Looked at in this manner, it is surprising that the proportions who "desired" to use day care centers are as low as Shortlidge indicates. This, in itself, reveals something about working mothers' preferences for modes of child care.

The majority of Shortlidge's paper consists of reporting the percentage distribution of child care arrangements of the working mothers in his sample by various demographic characteristics. While the results of this form of presentation are too numerous to detail here, a few are worth mentioning. The structure of the family is important in determing the mode of care. The presence of older siblings and other relatives make the use of out-of-home preschool child care less likely. Indeed, for white mothers the most important factor (according to Shortlidge) in the utilization of formal day care arrangements among mothers of preschool children is the presence of a single child less than six who has no other brothers or sisters under 18 living at home.[5] For female family heads, the percentage distribution of modal choice appears to be a function of the respondent's race. For black mothers, the absence of

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[5]How Shortlidge determines that this is the "most important" factor is not clear for no formal statistical test of this proposition is indicated.

the father resulted in an increase in the utilization of organized day care while for white women, utilization rates were not much different between married and unmarried mothers of preschoolers. This racial difference is explained by the "...greater availability of subsidized child care services through AFDC and Head Start (for black women)." (p. 46.)

While these results and others are of some interest, they are presented in a piece-meal fashion which precludes one from obtaining an insight into the total process and factors which affect a family's choice of preschool child care arrangements. In particular, Shortlidge neither develops nor tests a formal model of the choice of child care modes. Given that his results are not presented in the context of "holding other things constant," it is impossible to determine, for example, if the factors he cites as most important in determing choice or the racial differences he finds would remain in a multivariate analysis. The data employed by Shortlidge is a very important addition to our knowledge of the working behavior of married women and the arrangements they make for the care of their children during this time. As yet, however, these data have not been analyzed so as to give a great deal of insight into the state of the market for

child care services.

3. Meredith A. Larson (1975)

In contrast to the two preceeding analyses, Larson's report is a review of several primary sources which reaches several provocative and controversial conclusions regarding the market for child care. The most important of these are as follows:

(a) There is little evidence that there exists a substantial unmet "need" for additional day care facilities, particularly those which are publically subsidized centers;

(b) Utilization and attitudinal studies indicate that parents prefer family types of care rather than the more formal institutional mode;

(c) Given the above, public policies which favor center facilities over other options or offer tax incentives to use non-relative care may be ill advised.

While Larson's work is an accurate review of the studies she includes, it is important to note--as she does--that her conclusions and policy recommendations depend upon the data and methods used in her primary sources. Here Larson could perhaps be faulted for not going further to point out to

the reader how and to what extent the available evidence is deficient and how this may affect the policy conclusions she draws.

The studies she relies upon are primarily based on analyses of survey data. One's confidence in such data and the conclusions drawn from them depend, in large part, on the kind and form of the questions posed to the respondents, the method of data analysis, as well as the extent to which the results can be generalized to a larger population. Larson points out that attitudinal studies may be untrustworthy (p. 34) but is not sufficiently critical of the utilization studies she reviews. As an example of this, a point made to justify conclusion (b) stated above is that, "...(the) information suggests, all other things being equal, own-home care or care in another's home are the preferred types of care" (p. 36, italics added). This may or may not be the case given that the studies upon which the statement is based (Low and Spindler, 1968 and Shortlidge, 1975) do not hold all other things equal. That is, the studies examine, at best, two or three-way cross classifications of the data. Consequently, it is impossible to determine the net effect of any variable which may influence these preferences and to determine the relative importance of demand and/or supply elements in the

choice. The policy importance of this is that the reviewed studies do not clearly indicate whether the preference for in-home care is, for example, income determined with low-income families "forced" to choose this mode of care or whether the choice is independent of income and reflects perceptions of quality differential among modes. The total resolution of this issue may be impossible, given the present data, but it would be possible and informative to know if those who choose day care centers have high levels of educational attainment holding constant family income or do they have high levels of income, holding constant educational attainment? This is a question which the studies reviewed by Larson do not answer, but is one of many which could and should be, before a child care policy is formulated. Suppose, for example, parental attitudes concerning their perception of quality of child care are closely related to their educational attainment.[6] Then if high levels of this attainment are associated with the use of child care centers net of other factors, this implies that these centers are--or at least are perceived to be--of higher quality than alternative modes. If we are then, in turn, able to hold this taste variable con-

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[6]This conjecture is discussed in Nelson and Kraskinsky (1974).

stant, an investigation of the net effect of income on the choice of day care centers will enable us to infer the importance of a monetary constraint which limits the amount, kind or quality or the commodity bundle (child care) which the family is able to consume. On the one hand, we are able to gain some information on the formation of preferences from this multivariate analysis while also measuring the impact of a variable (family income) which may constrain the revealed preferences of those making the child care choice. Both pieces of information gained from this method of analysis would have important implications for a public policy of supply and support of, for example, out-of-home child care centers.

Larson's contention that there does not exist an unmet "need" for day care facilities is not a statement of economic fact as she seems to imply but rather a question of politics and philosophy (see, e.g., Mary P. Rowe, 1971). The question of "need" really refers not to effective demand for a commodity but a more subjective evaluation of a community's desires as evaluated by the voters, legislators and planners. Once we know more about the determinants of demand and the constraints imposed on choice, a community--through a political decision--can decide if there is indeed an unmet

"need" for child care services. The absence of an unmet need need not imply market equilibrium, however. Indeed, until we know more about both demand and supply differentials among communities, questions regarding the economic state of the child care market remain largely unanswered while the question of "need" can not be answered by economic analysis at all. Policy research--as opposed to advocacy research--owes it to the reader to make these distinctions and be at least as circumspect as the data itself in making recommendations. Given the data and analysis reviewed by Larson, she was perhaps too bold in her conclusions.

4. National Childcare Consumer Study (1975)

The data gathered in this survey represent the most comprehensive examination to date of the current patterns of child care use in the United States. The data were collected from a stratified national probability sample of approximately 4,600 households with children 13 years of age or younger. Nonwhite and low-income households were oversampled in order to guarantee their inclusion. Unlike most other surveys of this type, this one recognizes that the single-most elusive attribute of the data lies in arriving at a truly satisfactory definition of "child care." For expository purposes, the survey identifies the following nine modes of care: (1) in-home care by a relative, (2) in-home care by a

nonrelative, (3) other home care by a relative, (4) other home care by a nonrelative, (5) nursery and preschool care, (6) day care centers, (7) cooperative programs, (8) before and after school care programs, and (9) Headstart. A distinction is also made between "market care" for which cash is paid or a government subsidy provided and nonmarket care which is provided without fee or in trade. Clearly, these data give the best insight into the various auspices under which child care is offered. The distribution of this sample by their main method of care is shown in Table 1.

Nine out of ten households with children under 14 report using one of the forms of care listed above. It is worth noting that multiple arrangements for care are very common. One in three households use one and only one method of care, while the remaining two-thirds use at least two methods. The importance of this latter result should be stressed. If we are to understand this multiple choice from an economic perspective, we require some insight into the vector of characteristics which the good, "child care," produces and their relative prices. Without this information and a corresponding multivariate analysis of the determinants of choice, it will not be possible to fully understand the workings of the child care market.

Unfortunately, that type of analysis is not found in this present study of the data.

The major conclusions of this study as to who uses child care (defined as one or more of the nine modes listed above) are as follows:

(a) Households with younger children are more likely to use care than households with only older children.

(b) Employed parents are more likely to use more care than are parents in households with at least one parent who is not employed.

(c) Single parent households are more likely than two parent households to use care.

While none of these results are surprising, it is of interest to investigate the relative importance of these elements of household structure and labor force participation on the modal choice. This present study does not do this. Indeed, it treats each of these factors as if they were independent and, consequently, had independent effects on the demand for child care. This is clearly not the case. The structure of the household (i.e., single parent vs. two parent and number of children under age six) affects the (shadow) price of alternative modes of child care and also the price and cost of labor market activity by adult family members. Given this interdependence, any analysis of the data which ig-

nores this phenomenon may lead to quite biased results.

The National Childcare Consumer Study is particularly rich in enumerating the factors which influence a household's selection of its mode of child care. The importance of various types of services provided by alternative modes--or, to put it in a demand framework--the characteristics of the good which influence choice are discussed in some detail. The report is also properly circumspect in pointing out that consumer attitudes often lack concreteness, particularly when some of the questions are interpreted as hypothetical by some or all respondents. Given this caveat together with the fact that the data are not analyzed in a manner which holds other factors constant, it is worth noting that most consumers at least purport to select care for preschoolers for child-oriented reasons rather than their own cost or convenience. The validity of this result remains questionable but if confirmed by more vigorous analysis of the data, it--together with the result that most households use a nonmarket mode of care--will give us some insight into how preferences are formed and then revealed in the market for child care.

5. Greg J. Duncan and C. Russell Hill (1975)

Data from the 1973 wave of the Panel Study of Income Dynamics is used here to investigate the

importance of a variety of socioeconomic variables in the family's choice of a child care mode.[7] While the data distinguish among several different categories of child care, the authors group this care into three exhaustive and mutually exclusive modes on the basis of the location of care, its direct cost to the family and whether it was provided institutionally or informally. The distribution of this care by family, sitter and day care modes is shown in Table 1. The national probability sample analyzed consisted of both one and two-parent households in which the parent or both parents worked and which included at least one child less than 12 years of age. The analysis was also limited to those families who used some mode of child care at least 10 hours per week.

The model employed in this paper is of the type which combines both demand and supply affecting factors in the family's choice of the mode of care of the children. There is no effort made here to identify a unique demand function. Indeed, such an effort would be impossible given the techniques employed. Consequently, there is no way to judge the state of market equilibrium from this study. However, unlike the studies reviewed above, the work

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[7] A later study by the authors (Duncan and Hill, 1977) uses data from the 1974 wave of the panel data and a different statistical technique, but gets much the same results.

of Duncan and Hill does analyze the choice process in a multivariate framework so it is possible to determine the net effects of several variables on choice.

The model employed basically views the family's use of alternative modes of care as being determined by three classes of variables: (1) locational factors which may reflect both supply differentials and/or regional differences in tastes; (2) tastes for different child care modes which primarily reflect attitudes concerning the quality of care provided and (3) price and income variables which reflect both differences in the price of time of working mothers and the family's ability to pay. Data on the price per unit of quality of alternative modes is not available nor do we know the type of services (e.g. custodial vs. educational) provided in the institutional modes. Consequently, the model is misspecified in the sense that both important variables are omitted and our inferences about how tastes affect choice may be misleading as we can not observe some of the basic factors which relfect qualitative differences among the modes. Nevertheless, some of these problems of inference may be somewhat attenuated for the data in this study do have information on the age and number of children, and recent mobility. All of these variables have

been shown by Heckman (1974) to be significant predictors of the quality-adjusted price of child care. As these latter variables are included in the analysis, the omitted variables bias is somewhat lessened.

In choosing either a family member provided at no direct cost to the family or an individual (babysitter) outside the family which does cost the family some amount, the number of children in the family and the mother's wage rate are the two most important variables affecting this choice net of several other factors (including family income). These two factors operate in quite different ways between these two modes. There is a direct (inverse) relationship between number of children and use of the family (babysitter) mode, while there is an inverse (direct) relationship between the mother's wage and the family (babysitter) mode. These results lend themselves to an ability-to-pay interpretation with those families having the greatest wage income per child affording to choose extra-family care. There was no statistically significant differences in the rank order of importance of variables between black and white families or between male and female headed families.

While ability-to-pay, as proxied by female wage rates and family size, seems to dominate the choice between family and sitter care within the noninstitutional modes, this factor is of little importance in a family's decision to use a formal day care center

or nursery school for its children. The most important factors in affecting this particular choice are the family's region of residence and the education and religious affiliation of the parents. The authors found that families in the South and West census regions were much more likely to use this formal mode of care than were families in the Northeast and North Central regions. This factor of residence was the most important after controlling for many other factors which might affect choice such as race of head, family income, number of children and age of youngest child, among others. While the difficulties in interpreting the meaning of regional differences have been mentioned above, the net impact of education and religion on the choice of this institutional mode has been ignored in other analyses. To the extent that these variables reflect differences in perception of what determines high quality care, these perceptions are more important than monetary variables in affecting the family's choice of a formal day care setting for its children. The variety of subsidy schemes which have been proposed in order to lower the price of formal modes would, given the analysis of Duncan and Hill, appear to have little effect on the choice of this mode given that the variables which are most important in determining this choice can be changed not at all by governmental or private

sector action. This is perhaps the most important result of the authors' analysis.

B. Evidence From Income Maintenance Experiments

Starting with the well-known New Jersey Graduated Work Incentive Experiment, the primary focus of this experimental research has been on the labor supply response of the recipient population. More recent experiments have, however, included a social service component which is incorporated with an income guarantee. The social service of interest here is child care provisions. The research goal of the experiments which included this component (Gary, Seattle and Denver) was to determine the responsiveness of the treatment group to alternative rates of subsidy, or, in effect, to estimate the demand function for these services for a very particular group of families. The preliminary results of this work will be reviewed below.

1. Gary Income Maintenance Experiment (1974)

In an early and preliminary report on this experiment, Lois Shaw discusses the effect of subsidizing (at various rates) the child care services provided to black mothers, more than half of whom were household heads. The kinds of care eligible for subsidy included care by hired babysitters, day care center care or care in a licensed home or the home of a relative. Eligible families were offered subsidies for this care covering 100, 80, 60 or 35

percent of child care costs. For 20 percent of the sample this subsidy was offered without a work requirement, while the remaining 80 percent had to be employed, in training or in school, to receive the subsidy. The research questions of interest here are (a) how sensitive is the utilization of these child care services to the subsidy rate and (b) what is the effect of having the care provided on a work-related basis versus free-access care? Unfortunately, because of rather sloppy data gathering and survey design, neither question is answered satisfactorily.

In both the work-related and free-access programs, the rate of utilization generally declined as the subsidy decreased. The overall rate of use was also somewhat higher in the free-access programs than in those which were work-related. However, the utilization rates were so erratic over the course of the experiment that they offer little guide to policy. One of the problems of interpretation results from the inadequate survey design which lead to confounding of results. For example, in the two high-subsidy levels there was an inordinate number of moderate-income families. Consequently, it is impossible to determine if the use of care at these subsidy levels reflects a price or an income effect. There were other differences among experimental categories as well which were not adequately controlled for as

families varied by AFDC coverage by subsidy level and by sex of family head by subsidy level. Because of this, it is impossible to isolate the effect of the experiment's subsidy for child care services from other non-experimental phenomenon.

According to Shaw, the analysts were surprised at the low utilization of the subsidized child care during the experiment. However, given the design problems mentioned above, any result could be expected and none should be surprising. Of those who did take advantage of the subsidy, the great majority chose informal care--that is, care provided in the home by a hired sitter or care in the home of a relative. Although still the subject of some analysis, the eligible population who did not take advantage of the subsidy did so for a sound economic reason: informal care arrangements which were not eligible for subsidy were either cheaper or more satisfactory in other ways than the subsidized care.

2. Seattle and Denver Income Maintenance Experiments (1975)

The demand for child care by working mothers in the Seattle and Denver experiments is analyzed in a sophisticated manner by Mordecai Kurz and associates. For female family heads with children under the age of 13, a multivariate demand model is specified and tested for experimental families whose incomes are in the lower half of the national income distribution.

In the analysis, the following three major categories of child care mode are distinguished:

(a) Formal Market Care, i.e., care licensed by the state and for which a regular fee is charged,

(b) Informal Market Care, i.e., care not requiring a license but for which a fee is generally charged,

(c) Nonmarket Care, i.e., care for which no regular fee is charged which is primarily in-home care.

The analysis of the demand for child care is based on a model which estimates the probability of using each of these three major categories of child care using a multivariate conditional logit technique. The distribution of the sample by modal choice is not unlike other studies which use a sample more representative of the entire income distribution (see Table 1). For example, 17 percent of the sample from Seattle uses formal market care, while in Denver only 8 percent use this mode of care. Tests for interactions determined that there was little difference in demand structure between white and nonwhite families. However, the differences in structure between one and two-parent families were sufficient to require the use of separate models for these two groups.

The structure of the household as measured by the age and number of children is a very significant net determinant of modal choice. As the authors recognize, this is a reflection of a price effect on demand as the structure of the household is, in effect, a variable measuring the shadow price of alternative modes. For families with teenage children or other adults present, for example, there is a significant resistance to the use of formal market care for preschoolers. The reason is that even with a subsidy, where applicable, the formal market care/family care relative price is sufficiently high to lead families to use non-formal modes of care. Breakup of the extended family and early departure of older children tend to increase the demand for market modes of care. It is, therefore, critical to assess child care needs on the basis of the age distribution of the children in the family and the existence of an extended family. While other studies have pointed this out, few have analyzed its importance in a multivariate setting.

The effect of the mother's wage rate on choice of child care mode depends upon whether the family has one parent or two. For one-parent families, there is a modest increase in the probability of using formal market care with an increase in the wage rate, while there is an almost equivalent decrease in the probability of using

informal market care. The net result is that for one-parent households the net effect of female wages on market choices is negligible. For two-parent families, on the other hand, the probability of using both formal and informal market care is positively related to the wage of the mother. At the same time, modal choice for both one and two-parent families is essentially neutral with respect to other family income. This income consists of the earnings of the husband (when present), earnings of other family members, all public and private transfers to the family and capital income. The effects of female wage rates and other income found by Kurz, et al. for two-parent families are consistent with the results of Duncan and Hill (1977) who used a national probability sample which was representative of all income classes.

The importance of the relationship between female wage rates and modal choice is related to the method of subsidizing different child care modes. Because the utilization of market care is positively related to females' earnings (at least in two-parent families), child care programs which subsidize only market care are regressive in nature. That is, those who benefit the most tend to have the highest female wage income. This result tends to conflict with the redistributive objectives of other social programs.

For both Seattle and Denver, Kurz and associates demonstrate that the dollar benefits of the market subsidy increase with the earnings of the female head (Table 17, p. 53). From this they conclude that subsidizing market modes of care is neither an efficient nor equitable means for increasing women's participation in the labor force.

Especially in low-income families subsidies from public programs determine, to a large extent, the price of any child care arrangement. These subsidies are distributed either by direct reimbursement of child care expenses to working mothers (or child care vendors) or by use of a tax structure in which the reimbursements occur as allowable deductions. The subsidies provided in the experiments were virtually identical to those provided under the AFDC or AFDC-U programs. According to Kurz, et al., modal choice is very sensitive to the availability of child care subsidies for market care. For example, in both Seattle and Denver and for both one and two-parent families, a subsidy increased the probability of using market care. Within the market sector, the effects of subsidization are strongest for informal care. Indeed, subsidization had virtually no effect on the probability of use of formal market care. Consequently, if increases in the use of formal child care arrangements is to be encouraged

through the public policy of subsidization, the results of this study imply that subsidies must be applied differentially by mode. The latter technique is, however, again likely to suffer both on equity and efficiency grounds.

C. Income Differentials in Modal Choice

The previous section reviewed the evidence regarding modal choice from income maintenance experiments which were, of course, directed toward the low-income population. This present section, together with the one above, will attempt to summarize what is known about the demand for different modes of child care by the disadvantaged. A key element in this discussion is the definition of "disadvantaged." While most analysts would define this group in terms of their money or real income, it is clear that when investigating the choice of mode of child care, this is not sufficient. Presumably, the disadvantaged population may differ by tastes for mode of care, perception of quality of care, regional or city location and other (perhaps unmeasurable) characteristics which affect their choice decisions. Consequently, it is improper to compare modal choice decisions only by different income classes without recognizing the importance of the other elements which affect modal choice and attempting either to hold these constant or recognize their interactive effect.

The first that one can say about choice of child care

mode is that it appears to be quite income inelastic. That is, the multivariate work of Duncan and Hill (1975) and Kurz, et al. (1975) indicate that family income plays an insignificant role in affecting the family's choice of child care mode, other things being equal. Both studies use measures of income net of the effect of the working mother's wage rate. As noted above, the wage effect is a significant predictor of the choice of child care mode. In particular, it was found that, holding other family income and several other variables constant, the higher the wife's wage rate, the greater the liklihood that a family would choose informal market care (at least for two-parent families). At the same time, however, variations in the family's other income has no perceptible effect on their choice of child care mode. The earlier work of Low and Spindler (1968) also seems to indicate that the utilization of various child care arrangments does not vary much between low and high-income families (see Larson, Table 11, pp. 42-43). This study, however, did not separate the effects of family income from the wife's wage so it is not directly comparable to the works of Kurz, et al., and Duncan and Hill.

If we were to define the disadvantaged only in terms of their income net of females' earnings, then, the conclusion would be that their decisions are little different than the non-disadvantaged. This would be extrapolating too far, however, given that the disadvantaged

also differ by many other characteristics which do affect modal choice, among them the wife's wage rate. Nevertheless, when comparing several utilization studies which investigate the modal choice of a variety of income groups, one is struck by the similarity in the distribution of child care arrangements across these groups (see e.g., Table 1). The most disturbing comparison shown in Table 1 is the very large percentage of children in Kurz, et al., who receive "no regular care." These children are in low-income families but the table itself is misleading for it does not indicate the effect of age of child on this distribution. Detailed analysis contained in Kurz's paper indicates that the presence of preschool children leads to the use of nonformal market modes of care and a sharp reduction in nonmarket care which includes "no regular care." Race of head also seems to have little independent effect as well, although it may have an interactive effect as, for example, race and family composition and race and city or regional location are, no doubt, interdependent phenomenon.

Most of the studies reviewed above indicate the importance of the family structure in affecting modal choice. Unfortunately, none of these studies investigated the interdependent effect of income and family structure in an unambiguous manner. Shortlidge (1974) did investigate the effect of race by family structure and found that blacks relied more heavily on siblings

and other relatives for child care services. The explanation for this was both that these "other" relatives are more likely to live in the households of blacks than whites and older black siblings are available for child care because of the higher incidence of unemployment among this demographic group. Larson (1975) indicates that the "...preponderent choice of at-home care by low-income families suggests an even stronger statement of preference for this form of service, since it is chosen despite its unusually high cost...." This reasoning is based on the fact that the opportunity cost of staying out of the labor market forms a relatively higher proportion of a low-income family's potential income. While this reasoning is fine up to a point, it disregards the fact that the expected earnings of an unemployed teenage member of a low-income family is likely to be quite low given their high rates of unemployment. Consequently, Shortlidge's analysis seems more nearly correct: Given the size and structure of the family, low-income families choose at-home care because its relative price is low.

Larson (1975) has indicated that the use of day care centers by blacks has more than doubted in the 1965-71 period. No convincing explanation is given for this phenomenon, although some anecdotal evidence is offered. However, if black families form a disproportionate share of the low-income population and this population is offered (or coerced) into using subsidized

day care centers through the AFDC or WIN programs, this may explain this increased usage. The fact that low-income families in the Denver and Seattle experiments receive child care subsidies has increased the usage of informal market modes of care according to Kurz, et al. However, as pointed out above, subsidization had little effect on the use of formal institutionalized modes of care. The discussion of Larson and the empirical work of Kurz, et al., are not necessarily inconsistent, given that the populations with which they are concerned are quite different. Nevertheless, it does prevent one from making a generalization regarding the causes of the observed increase in black families' usage of formal day care centers. In the absence of additional evidence, however, it would not seem unwarranted to conclude that this increased usage had little to do with the presence of subsidies but rather was due to other socioeconomic factors which we unfortunately can not, at present, document.

The available evidence appears to indicate that disadvantaged families choose at-home or informal modes of care in much the same manner as do other families. The utilization studies which have been undertaken, then, indicate this population's revealed preferences towards mode of care. The demand preferences which are revealed indicate what the household is willing and <u>able</u> to purchase at alternative prices. Consequently, it may be

true that the choices which the disadvantaged have open to them are so constrained by their limited income that there may be a difference between private and social perceptions of the benefits to be received from alternative modal choices. That is, while the individual low-income household is maximizing its welfare--given the constraints it faces--it may not be making what society considers to be the optimal choice because of inequality of opportunity or lack of information. The validity of this premise is questionable and will be discussed in detail in Section IV of this paper. It can be stated here, however, that even when considerable information is provided these families regarding the presumed advantages of center care (as occurred in the Gary experiment) or when subsidies were offered to promote this care, the quantity demanded of formal market care by low-income families is very low.

Finally, it should be pointed out here that none of the studies reviewed in this section explicitly test for differential modal choice by income class. To do so would require a national sample of families of all income classes and an interactive model which formally tested for the independent and interdependent effects of income and the several other socioeconomic factors which affect modal choice. Examining only low-income families and making comparisons with other non-disadvantaged households is risky because of a possible

sample truncation bias. Consequently, while we know something about the factors which affect modal choice of the disadvantaged, we can not as yet say that there is or is not a statistically significant income differential in this choice behavior. More important from a policy standpoint, if there is a difference, why does it exist and does it imply some type of private market failure?

D. The Supply of Child Care

To date there has been no simultaneous examination of both the demand and supply factors which determine the market equilibrium for child care services. Consequently, any study which looks at only one side of the market is obviously incomplete and quite possibly incorrect. This present review can not remedy that deficiency. This section's goals are much more modest: we will examine here briefly a few of the supply studies which have been undertaken with the primary objective being to determine the role of state, local, and Federal government in providing these services to working mothers. In 1971, Mary P. Rowe reported that fully-costed, "good" child care costs upwards of $2,000 per child-year, not including start-up costs and bureaucratic costs. According to her data, Federal, state and local governments were found to supply about half of all resources to formal child care while parent fees accounted for only 15 percent of total costs. Whether this is a proper

task of government given the revealed preferences of households and the most equitable and efficient means of governmental support will be discussed in Section IV of this paper.

Differences in costs among centers or other child care providers presumably reflect differences in quality delivered to some extent. Unfortunately, as Rowe points out, there are at present no adequate ways to measure the effects and/or the quality of child care and the measures which are available show no reliable "output" differences among programs. In most of the cost studies undertaken, however, "quality" is typically defined in one or more of the following ways:

(1) Presence or absence of a preschool program or explicit early childhood education activities.

(2) Program scope, defined as the presence of educational programs, meals, medical care, etc.,

(3) Staff-child ratio, with a higher ratio considered more favorable.

Rowe's analysis of three quality levels (minimum, acceptable and desirable) shows that nearly all the increase in costs for higher levels of quality can be attributed to more staff time. Actual cost estimates have also indicated that economies of scale are modest. This latter result is, however, open to question for there has been no formal econometric examination of the total, aver ge

and marginal costs of producing a given quality of care and how these costs vary by output level.

The National Day Care Study may, in time, answer some of the questions concerning the relationship between costs and output of child care services. The basic mandate of this study (conducted by Apt Associates) is to examine the impact of variations in the regulatable characteristics of federally-subsidized center-based day care on the cost and quality of the care received by preschool children. The main policy variables under study are the staff-child ratio, size of group of children assigned to a class and "professionalism." The latter policy variable will attempt to access the importance of child-related training and experience of classroom caretakers. These variables have generally been regarded as critically associated in some direct way with quality and cost. As part of this study, a supply survey will be undertaken of approximately 3,000 licensed day care centers. These data will be used to develop state-by-state profiles of day care and will provide the basis for an econometric analysis of the impact of federal child care arrangements and funding strateties on firms within the industry. The impact of this study should be significant in its insights into the determinants of costs and the effect of government policy on the supply of services.

At the present time, however, the best available in-

sight into the characteristics of the supply side of the child care market comes from a geographically narrow but reasonably well done study of Denver and Seattle (Hall and Weiner, 1976). This analysis includes both a description of the child care market structure as it existed in mid-1974 and an estimation and decomposition of cost functions for this care. For purposes of analysis the day care industry is divided into a formal sector consisting of licensed family day care home operators and child care centers and an informal sector which primarily consists of in-home providers. The full results of this report are too numerous to discuss here. Consequently, only a few will be mentioned--those being the ones that relate most directly to the purposes of this report.

As mentioned above in this section, the staff-child ratio is typically used as the accepted proxy for child care quality. Hall and Weiner found in Denver and Seattle that the informal sector had higher ratios than was found in the formal sector. This points out the danger in using a unidimensional measure of quality for the authors also found that the educational attainment of the informal sector providers was generally lower than in the formal sector. The authors make an important point here regarding measures of quality. Although intrasector comparisons of quality on the basis of the staff/child ratio are possible, intersector comparisons are not very

meaningful.

The authors contend that an examination of capacity utilization of providers and of waiting lists for users in the day care market can provide some information about the state of market equilibrium. Their conclusion is that there appears to be "substantial friction" in the clearing of the market. This is based on the fact that while 60 percent of all centers in both cities had waiting lists, they were only using between 80 and 90 percent of their capacity. The friction, then, i re-flected in unused day care services and "unsatisfied demand." This reflects a misuse of the term demand for "unsatisfied demand" is unknown to the economist without reference to the price structure. Presumably the centers were not used to full capacity because the quantity demanded by users at existing prices of the center care and alternatives was not sufficient to fill all the spots. Simply putting one's name on a waiting list is not an indicator of revealed preferences. Consequently, the existence or absence of market equilibrium can not be determined from this type of evidence.

A finding of considerable interest in regard to governmental approaches to subsidizing different modes of child care was that in an intercenter comparison the larger the percentage of children being subsidized in day care centers, the greater the gross revenue per child. This implies differential center pricing accord-

ing to subsidy status. In other words, the subsidy rate is greater than charges for non-subsidized users. The implications of this fact for both economic efficiency and equity are not pursued in the paper by Hall and Weiner but will be discussed below in Section IV. One of the other critical issues with regard to the subsidization of day care services is whether the subsidy should promote the services or modes deemed to be desirable by the subsidizing agency or whether the subsidy should support the use of the service that is revealed to be preferred by its use. This issue will be discussed below as well.

The authors characterize the day care market in Seattle and Denver as being both competitive and free of significant entry barriers. While the legal regulations imposed on formal sector providers are not particularly onerous to potential entrants, the market does not appear to be one which could be characterized as "competitive." In such a market, the price charged to users would be influenced by the number and quality of competitors. However, given the governmental price support mechanism prevalent in the formal sector, there is no incentive to cut prices. The authors admit that if a provider cuts prices, the subsidy would be reduced for the children under the center's care. This hardly characterizes a competitive market as it, among other reasons, is not consistent with efficiency.

E. A Summary of the Findings

The several studies reviewed above use different data sources and methodologies to draw inferences about the demand for and supply of child care services in the United States. This section will attempt to briefly summarize the major findings across these studies.

1. The utilization studies of Lave and Angrist, Shortlidge, National Childcare Consumer Study, Duncan and Hill, and Kurz, et al., all indicate that either in-home or informal market care is the "preferred mode" of child care for the majority of households across a wide spectrum of income levels with preschool children. Preferred mode is used here in the sense defined in Section II of this report where the rationale was discussed under which economists consider that a consumer's action of purchase reveals his or her preferences.

2. Lave and Angrist and Shortlidge both attempt to determine if mothers of preschool children would use institutionalized day care centers if they were available at a "reasonable cost," and/or convenient. In both studies the answer was generally "yes" although such questions are suspect for they don't require the respondent to reveal her preferences in the market and are open to various interpretations as to what, e.g., is

meant by "reasonable cost."

3. Shortlidge's data, together with the data from the National Child Care Consumer Study, suggest that the great majority of women are "content," "satisfied," or "happy" with their present modal choices. Again, however, the questions which elicit such responses may be suspect if they induce a respondent to give the answer which is least embarrassing to her.

4. Several of the studies--particularly Shortlidge; National Childcare Consumer Study, Duncan and Hill and Kurz, et al.--have illustrated that the size and age composition of the family is a critical factor in affecting the family's choice of child care mode. Basically, the lack of teenage siblings or other adults, or a one-parent family, sharply increases the probability of the family using an extra-family mode of child care for its preschoolers. Unfortunately, no formal study has been made of the differences across income groups regarding the effects on child care choice of different family environments.

5. The net effects of working women's wage rates and other family income differ in the manner in which they influence modal choice. Both Duncan and Hill--who used a national probability survey sample--and Kurz, et al.--who used data from two

income maintenance experiments--found that for two-parent families the higher the wife's wage rate, the more likely the family is to use both formal and informal market care. While Duncan and Hill found no significant difference in this effect between one and two-parent households, Kurz, et al., did with the wage effect in one-parent families being negligible with respect to its effect on the choice of market care. Both studies did indicate that other family income had essentially no net effect on modal choice. This latter result is in contrast with Lave and Angrist who found that users of formal day care had higher incomes than average child care users. Their study was ambiguous about the reason for this, however, and, in any case, did not perform this test in a multivariate setting.

6. Only Duncan and Hill's study examined the effect of inter-family taste differentials in any detail. If these differentials among different modes can be proxied by the parents' educational attainment and religious affiliation, their study indicates that these variables are among the most important independent factors which affect a family's choice of day care or nursery school for its preschool children. The National Childcare Consumer Study also found that child-related attributes constitute the strongest factors in the selection of

preschool child care with--according to the parents surveyed--adult convenience and cost being considerably less important. Again, the question posed to the respondents may lead to these rather self-serving responses.

7. Only Kurz, et al., investigated in any detail the effect of subsidizing formal modes of care. They found that the subsidies offered in the Seattle and Denver Income Maintenance Experiments had the strongest positive effect on the use of informal market care. However, because the use of this mode of care is positively related to female earnings, this method of subsidy was regressive in nature. Families with higher female earnings in the experiments received greater subsidies.

8. On the supply side of the child care market, it is difficult to make quantitative judgements regarding quality differentials. Nevertheless, most studies use the staff-child ratio as a convenient method to evaluate differences across day care centers or other market providers. Scale economies seem modest in the provision of care although no detailed econometric examination of this question has yet been undertaken and the measure of "output" is a difficult one.

9. The simultaneous existence of day care waiting lists and excess capacity in the day care centers

need not imply market disequilibrium. Without further information on the price structure of alternative modes of care, the mere fact of putting one's name on a waiting list is not a reliable indicator of consumer preferences.

IV. THE FEDERAL ROLE IN THE CHILD CARE MARKET

The arguments for expanded national day care coverage seem to be based on four factors (see Shortlidge, p. 54). First, the number of individuals on the waiting lists of day care centers is quite large; second, the number of female headed households is increasing; third, the labor force participation of women with preschool children has shown a dramatic secular increase; and fourth, there is the impression that self-care or care by older siblings is inadequate care. While these factors may be politically persuasive, they do not, by themselves, imply a Federal role or reflect or indicate an excess demand for formal, institutionalized day care facilities. Given the studies reviewed above, the following conclusions can be drawn which may be useful in discussions of a Federal policy for preschool services:

Conclusion 1: Households with working mothers reveal their preferences by purchasing at-home or informal market modes of preschool child care for reasons that are economically rational. That is, these modes have a lower price relative to the formal market mode and appear to provide the care which consumers desire.

Conclusion 2: While most studies indicate that consumers are content with their present method of caring for children, this result deserves additional analysis to determine the factors which affect preferences among different modes

given the complexity of the commodity, child care, and the necessity for adequate consumer information about alternatives.

Conclusion 3: The size and age composition of the family is a critical factor in affecting a family's choice of child care mode. Unfortunately, we know little about how this effect of family environment differs across income groups or the qualitative dimensions of the care provided. These questions must be answered for the effects of family structure on modal choice will have important implications regarding the form of a Federal policy of child care subsidization or other methods of support.

Several times in the review above we have pointed out that existing studies have not been able to uniquely identify a demand function for alternative modes of child care. The studies which have been completed combine supply and demand elements in an unknown manner. Where data do exist on both the demand and supply structure of the child care market within a given area (as in the Denver and Seattle IM experiments), there has not, to date, been a simultaneous examination of their interdependence. Consequently, there is no way of truly understanding the effects of prices and other factors on the market equilibrium or of determining the existence of an equilibrium. The importance of this should not be underestimated. Without reliable estimates

of the demand and supply functions and their interdependence, it is not possible to identify with any degree of certainty the existence of excess demand or supply. The existence of waiting lists for center care need not imply an excess demand for this mode of care or an "unmet need" as some authors have implied. For the economist, an excess demand for center care would be indicated by a rise in its relative price. As Larson (p. 29) points out, however, there is no available data by region which indicates trends in the inflation-adjusted price of child care.

The concept of price is, itself, ambiguous. We would like to measure the relative per-unit of quality prices of alternative modes of child care. If this could be done, it would be possible to better understand the effect of price on the substitution of one mode for another, other things being equal. This is an important component of any economic study of the demand for a commodity. Public policy would also be enhanced by such knowledge to the extent that public programs will certainly change relative prices and this will, in turn, affect the quantity demanded of alternative modes. Unfortunately, our ability to measure the relevant phenomenon is limited. It is particularly difficult to measure the price of at-home or informal market modes of care. We have indicated above several proxies which have been used with some success but it is unclear how appropriate they are. It is also difficult to "deflate" the relevant prices in order to adjust for quality differentials. Household

perceptions of quality can be measured indirectly but again the omission of the corrent variable (to the extent that there is one) will lead to biased estimates.

The complaints about incomplete data and inadequate analyses are confined not only to the study of the market for child care. They are common to all empirical research and will never be solved to the total satisfaction of all interested parties. Nevertheless, from the studies which have been undertaken we know quite a lot concerning the determinants of modal choice. The point of this section is to discuss the proper role of the Federal government in this market, given the incomplete information we do have available.

Governmental intervention in a market is justifiable on economic grounds if the private market's demand and supply relationships do not fully measure both the private and social benefits or costs of a transaction. There are two occasions which will lead to this private market failure. The first pertains to what is called the exclusion principle. In private market transactions, prices are the mechanism whereby some potential consumers are excluded from the market. Prices ration the available supply of the commodity so that those individuals who can pay the price reveal their preferences through purchase of the commodity while others are excluded. However, if there are commodities whose consumption is shared by all and individuals can not be excluded from consumption by the price system, consumers will

never reveal their true preferences regarding these commodities. An example of such a public good is national defense where the exclusion principle is inoperative. That is, there will exist no price system which will lead to a social optimum allocation of resources for even those who do not choose to pay the price of national defense know they can consume it in amounts equal to everyone else. As these "public goods" will never be able to be provided by the private sector because individuals will never reveal their preferences, they must be supplied by some social or collective agent. There seems no grounds for justifying governmental intervention in the child care market on the basis of this commodity being a public good. The exclusion principle is operative and, consequently, a household's modal choice is indicative of its preferences.

The second occasion which may lead to private market failure relates to what are generally called quasi-public goods. While the exclusion principle is operative for these goods, there is a divergence between private and social costs and/or benefits. That is, the consumption or production of such goods affects third parties which are not directly involved in the market transaction. These spillover effects or <u>externalities</u> are not properly measured by the price system. Examples of quasi-public goods are public education and the interstate highway system. Quasi-public goods are also sometimes considered to be <u>merit goods</u>. These goods are so socially meritorious that they are provided through

fiscal means over and above what is provided through the private market and purchased voluntarily by consumers. The argument here is that while the price system could perform its exclusion role, the private sector would underallocate resources to the production of these goods for the price system would not measure the social benefits of production. The immediate consumers of the good may not understand the value of, for example, education to society and hence not be willing to pay for enough of it. If this is the case, then the government has a role in subsidizing the production or consumption of these goods in order to increase their use by the private sector and achieve the social optimum allocation of resources. Institutionalized day care may be such a quasi-public good if it could be demonstrated that its consumption is socially "meritorious" or has significant external benefits to society. We now turn to this critical question.

Day care programs have been supported for the poor under the premise that this would enable low-income mothers to work and/or receive job training and would, consequently, lead to a reduction in the social costs of public welfare. However, whether it is cheaper to encourage a mother to work by offering subsidized day care rather than remain on welfare depends on (1) what she could earn if employed, (2) the probability of her finding a job and (3) the social costs of providing the day care needed to continue working. The latter point depends upon the auspices and services

offered for various modes of care. Most analyses of this question have concluded (see Husby, 1974) that the cost to the taxpayer of child care provided in day care centers or licensed day care homes exceeds the cost of continuing welfare payments to the mother to stay at home. While welfare benefit levels and day care costs differ from state to state, it is generally the case that taxpayers will not benefit--at least in the short run--by paying day care rather than welfare benefits to the low-income mother. Consequently, if such a Federal policy is to be justified, it must be justified on grounds other than saving money for the nondisadvantaged. The usual justification, then, is that these day care programs are beneficial to the children and will, therefore, have significant long-run external benefits for society. The evidence on the validity of this premise is mixed, at best.

The author of this report is not qualified to judge the validity and quality of the studies undertaken to examine this rationale for public support of preschool services to low-income children. In sum, however, the evidence cited by Schultze, et al. (1972) and Larson (1975) appears to indicate that: (1) preschool developmental day care for disadvantaged children seems to have some immediate positive result on cognitive and affective development but (2), day care by itself may not be a particularly good social investment if the objective is to increase the children's ability to function in school. According to Larson, no known pre-

school experience has "...a lasting effect on the cognitive abilities or skills of these children independent of later interventions" (p. VI). Subsidizing institutionalized day care for low-income families has, in summary, questionable external benefits for society--at least as judged on economic grounds.

The case for making day care free to all income groups is similar to the case for free public schools which was discussed above. Society will, it is alleged, benefit from such care for it will reduce failures in school and will avert health, crime-related or other costs to society later on. These benefits to both the individual and society are difficult to measure but it seems clear that some attempt must be made to do so and then compare the benefits of day care services against the benefits of alternatives. The general concensus is, however, that the external economic benefits of publically provided day care services are, at best, quite small. If this is true, then the argument for governmental intervention in the private market is weak on economic grounds. We stress that this argument is made on economic grounds only and other philosophical arguments may be persuasive. For example, the argument is made by women's rights groups that an important step in achieving equality for women is for society to finance the child care costs of those who wish to work. While this may imply that there does, indeed, exist an "unmet need" for day care center services, it should be recognized that this need reflects

a political, not economic, judgement and that to characterize day care services as a good which provides significant external benefits to society is a shakey proposition. If there has not been a private market failure, then the provision of publically supported day care or other preschool service reflects a political concensus which the economist will accept. However, economic analysis still has an important role in suggesting the most efficient and equitable means of public support of these services.

Beginning in 1972 the cost of child care became tax deductible for wives or single parents working "substantially full time." In order to benefit from this law, working women had to work three-quarters time and file an itemized tax return rather than take a standard deduction. Dickinson (1975) has studied the impact of such a law on different income groups. According to her data, only 18 percent of the families earning $6,000 or less per year realized a tax savings from this child care deduction, while at least 40 percent of families earning over $6,000 had a tax savings. The average family in the lowest income bracket did not benefit from the tax deduction either because it payed no tax or if it did, it did not itemize deductions. Middle income households appeared to benefit the most from this tax provision. This inequity by income class may be somewhat alleviated to the extent that low-income households are eligible for other forms of child care subsidies. Nevertheless, it is difficult to understand the underlying economic

rationale for offering tax deductions to working mothers. The usual explanation is that the care of children is a work-related expense which should be deductible just as are the tools and special clothes worn by, e.g., mechanics and that this deduction will lower women's reservation wage, encourage their entrance into the labor force, and consequently increase national output and have beneficial social benefits. Both arguments are tenuous. First, work-related tax deductions exclude those items which can be and typically are used, or consumed, in the home. Certainly children, to some extent, are such a consumption item and as such do not correspond to the usual definition of a work-related expense. Second, there are no external benefits to society by women working to the extent that their addition to national output is equivalent to the addition of their own income. The benefits of working are captured by the women, not by society. Consequently, it is difficult to justify society subsidizing their efforts--at least on these economic grounds.

The 1976 Omnibus Tax Bill replaces the tax deduction with a tax credit for child care expenses necessary for one or both parents to hold jobs. The credit would be 20 percent of up to $2,000 of expenses of caring for one child or of up to $4,000 for caring for two or more. The maximum credit would, therefore, be $400 for one child and $800 for two or more. The credit would be available even if one or both parents work part time. Finally, the credit may be claimed for child care expenses paid to non-dependent rela-

tives even if they are members of the taxpayer's household. Tax credits are simple subtractions from a household's total tax liability and a 20 percent tax credit is equivalent to a 100 percent deduction if a household is in a 20 percent marginal tax bracket. A credit given to a family essentially means that the government purchases a portion of the family's child care. The tax credit has the advantage of being equitable across income classes and does not distort the families' choice of mode by excluding relative care, unlike the itemized tax deduction. The economic justification for the credit is presumably based on the fact that child care is considered a merit good and the goal of equalizing the costs of employment for women with and without children. A side effect of such a credit--which can not be examined in this report--is that it lowers the price of having and raising children.

Subsidies to disadvantaged households through, for example, the AFDC or WIN programs are typically justified by the "benefits to children" rationale. That is, children from these households would benefit from the experience that can be provided by day care centers compared to what they would receive at home. A more subtle implication of this view is that the public believes that disadvantaged children ought to have better care than their parents would voluntarily choose. This is true even though the available evidence indicates that low-income families choose essentially the same modes of care for their children as do the nondisadvantaged. Nevertheless, the presumption is that the disadvan-

taged household is not able to provide suitable developmental at-home care to its children. As discussed above, the benefits of developmental center care for these children is, at least in the long run, open to serious question. There may, however, be important short-run benefits from such care, although a net reduction in welfare costs is not one of them.

Although the existing distribution of child care arrangements by the services offered and the auspices under which they are offered may not be satisfactory to some observers, it can not be said that this distribution reflects a failure of the private market mechanism. Although arguments by advocates for a Federal role in the child care market will typically be expressed in terms of market failure, there is little, if any, evidence to suggest that this is true. Nevertheless, the presumed benefits to children argument as well as the demands of middle-income families to receive a subsidy so as not to be discriminated against relative to low-income households, indicates that there will be an important Federal role in this market. This role should be one of improving the market in terms of promoting both efficiency and equity. The principal effort of Federal money thus far has been to subsidize a small portion of the total day care arrangements, permitting these to offer care beyond custodial for children of poor families. This relatively narrow focus is likely to change in the near future.

The general direction of public policy over the last ten years has been both to augment private demand for child

care by the provision of a public subsidy for certain classes of children and to support the evolution of private nonprofit organizations as the preferred delivery vehicle for subsidized care. There is, unfortunately, no built-in administrative machinery for allocating resources among these nonprofit centers in response to changing patterns of demand, nor is there the resource-allocation automaticity associated with for-profit organizations. That is, if there is an expansion of demand for the services of a nonprofit center, what mechanisms induce its expansion? Nelson and Krashinsky (1974) indicate that the usual response to such an expansion is an enlargement of waiting lists rather than the facility. The method of subsidy for child care subsidies must be one which leads to more flexibility in consumer choice and administrative response.

Given that there will be a Federal role in the market for child care services, Nelson and Krashinsky have developed what seems to be an attractive and viable system. This system would entail a mixture of public and private financing together with a mechanism of control on the demand side that blends parental and professional judgements. The subsidy itself should take the form of a voucher which is given directly to the consumer, not the vendor. The voucher would be income conditioned and age-structure-of-family conditioned. Although this would require a means-test, the equity advantages would seem to outweigh the disadvantages of requiring households to demonstrate their need. If individual judge-

ments are well informed, the ability of consumers to sort themselves out by picking their own suppliers through a voucher system provides important efficiency advantages. It induces suppliers to be more responsive to changing patterns of demand than would be the case if the vendor directly received the subsidy. It would also eliminate inequitable pricing practices such as observed in the study of Hall and Weiner.

An essential component of such a voucher system is a mechanism to ensure that parental judgements are relatively well-informed about the care of their children and about alternative facilities. Nelson and Krashinsky suggest several administrative methods by which this could be accomplished, so they will not be detailed here. If, however, extra-family care is to be subsidized, there seems no economic grounds for differential subsidies between informal and formal market modes. If, when provided adequate information regarding the care provided, families prefer baby-sitters to day care centers (as the evidence to date indicates), this should be supported in the same income-conditioned manner as described above. This leads to our last policy conclusion:

> Conclusion 4: Unless and until convincing evidence becomes available regarding the benefits to children of alternative modes of care, Federal policy should be essentially neutral with regard to promotion of one mode of care over another. If child care is to

be supported, in part, through Federal monies, the goal should be both one of equity across families of differing income, female wage rate and demographic characteristics and one of minimal distortion of consumers' revealed preferences.

The suggestions made above for change should lead to an improved formal child care market. It will be more equitable and perhaps more efficient than the market now present. When one looks at the entire child care modal distribution--both formal and informal market care together with nonmarket care--it is not clear that a Federal intervention, whether through a voucher scheme or other mechanisms, will "improve" the functioning of the choice decisions made by households. Nelson and Krashinsky mistakingly imply that the fact that most households choose nonmarket care means that the formal market and past government support of this market has failed. This is no necessarily true. Indeed, the evidence reviewed in Section III of this report indicates that consumers choose nonmarket modes for rational reasons and are likely to continue to do so regardless of Federal action. The Federal government should, therefore, accept and understand this example of consumer sovereignty and play largely two roles in this market. First, as a catalyst which facilitates consumer choice by providing information to potential consumers of alternative market modes and second, developing a subsidy scheme which is both equitable and flexible enough to ensure an efficient allocation of resources to the desired mode of care.

TABLE 1

PERCENTAGE DISTRIBUTIONS OF CHILD CARE ARRANGEMENTS* FOR SELECTED STUDIES

Source	In-Home Care				Out-of-Home Care				No Regular Care
	Husband	Older Child	Other Relatives	Non-Relative	Relative	Non-Relative	Organized Group Day Care**	Combinations	
Leve and Angrist, Table 1	7	2	7	14	18	20	19	10	
Shortlidge, Table 3.1, (White with youngest child less than 6)	14	11	16	10	5	13	9	6	2
Shortlidge, Table 3.1, (Blacks with youngest child less than 6)	9	13	24	6	9	6	12	4	1
National Childcare Consumer Study, Table IV-2 (Main Method of Care Used)			22.5	20.9	27.2	16.5	10.3		
Duncan and Hill, Table 7.1	15.7	5.3			26.8	36.9***	12.4		
Kurz, et al., Table 4, (Seattle Income Maintenance Experiment)	←	15.0	→	9.1		22.8	17.1		33.8
Kurz, et al., Table 5 (Denver Income Maintenance Experiment)	←	5.4	→	9.3		33.2	7.9		46.7

NOTES TO TABLE 1

*Percentages may not add to 100 percent given the difficulty in comparing the several studies with various definitions of care. The reader is advised to consult the original sources for details.

**"Organized Group Day Care" is defined as follows in the several studies:

1) Lave and Angrist: Day care centers, family homes and all-day nurseries,
2) Shortlidge: Public/Private day care centers or home, group day care,
3) National Childcare Consumer Study: Day care center, nursery or preschool care, cooperative program or babysitting co. op.
4) Duncan and Hill: Day care center or nursery school.
5) Kurz, et al.: Day care center, licensed family day care home.

***This percentage includes babysitters or friends of the family if the care is provided at some cost to the family. No information is provided about the location of this care. Consequently, part of this total should no doubt be included in non-relative in-home care.

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